

# Gastroschisis in Uganda: Improving resuscitation and early feeding project with support from Rotary Foundation

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# Outline

- Key points
  - Challenges in Uganda
  - What measures we have taken
  - How these measures have improved outcomes

# Uganda



Mulago National Referral Hospital

2 pediatric surgeons, 2 fellows,  
new 16-bed NICU, 45-bed  
pediatric surgical ward

Mbarara Regional Referral Hospital

1 pediatric surgeon, 1 fellow,  
no NICU, 17-bed pediatric  
surgical ward with 6 neonatal  
beds



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## Gastroschisis in Uganda: Opportunities for improved survival



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- Prospective cohort study, Mulago National Referral Hospital in Kampala 2014-2015
- Mortality was 98%, 1 out of 42 survived; half presented within 12h of delivery; average time to death was 4.8 d (range <1-14d)





# Challenges

- Low priority b/c of poor prognosis
- Lack of intensive care
- No TPN
- No central venous access and loss of peripheral IV access over time
- Poor fluid management (only burettes for delivery of IVF and drugs)
- No preformed silos

## SURGERY IN LOW AND MIDDLE INCOME COUNTRIES

# Reducing Gastroschisis Mortality: A Quality Improvement Initiative at a Ugandan Pediatric Surgery Unit

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- QI project with focus on early feeding, Mbarara Regional Referral Hospital 2018
- Mortality reduced to 59%, 7 out of 17 survived, 4 absconded
- Now a priority and improved staff attitudes/practices

# Early Feeding Protocol

Table 1 Protocol

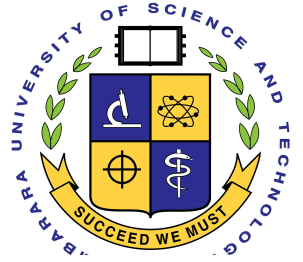
Protocol
1. Insert nasogastric tube and aspirate all the stomach contents
2. If silo bag is delayed, cover the bowel with urine bag and secure with crepe bandage. Avoid placing wet swabs directly on the bowel
3. Secure IV access and give a bolus of normal saline at 20 mls/kg
4. Check SPO <sub>2</sub> , if less than 90% put on O <sub>2</sub> therapy
5. Weigh the baby and record admission weight
6. Maintain with dextrose 10% at 4 mls/kg/h (fluid overload should be avoided)
7. Intravenous ceftriaxone 50 mg per kg daily for 7 days
8. Intravenous paracetamol (10 mg/kg) or rectal paracetamol 62.5 mg 6 h for 7 days
9. Enlarge the defect generously and suture urine bag around defect at the bedside under L.A (lidocaine 1%). Use a running suture size 3.0 or 2.0
10. Meticulous handling of gut is important during suturing the urine bag to avoid kinking of mesenteric vessels
11. Keep baby warm; place baby in the incubator and if an incubator is not available cover well with warm clothes
12. Proceed to warm saline enema about 10–20 ml per kg once or twice
13. Teach mother how to aspirate nasogastric tube every 2 h
14. Allow mother to express breast milk, soak gauze in the milk and let the baby suck the swab PRN
15 Reduce gut daily avoiding signs of abdominal compartment syndrome
16. Allow baby to breastfeed fully as soon as they start passing stool. Gradually increase as tolerated. Nasogastric tube may be clamped after several days. If the baby doesn't vomit, the tube can be remove. Supplement with IV fluids until feeding is fully established to prevent dehydration
17. Weigh the baby before discharge and record discharge weight
18. Remind mother to immunize the baby
19. Counsel the parents about the condition and possible outcomes
20. Educate the midwives to leave a long stump of umbilical cord for gastroschisis baby (this can be used to cover the defect)

## Key Intervention Measures

- Urine bag sutured around defect at bedside with local anesthesia
- IVF resuscitation using PIV access
- Antibiotics, normothermia
- NGT with aspiration q2h by mother
- Breast-milk gauze
- Daily reductions
- Once passing stool, infant allowed to breastfeed as tolerated

# Outcomes

- Median time to full feeds 14 d (7-21 d)
- Bowel reduced by day 8
- 2 primary closure, 19 staged closure



**Table 3** Non-survivors

Patient	Weight (kg)	Length of survival (days)	Cause of death
1.	1.1	24	Dehydration no IVI access overnight
2.	2.0	14	sepsis
3.	1.7	11	Dehydration, no IVI access overnight
4.	2.0	11	High output fistula, dehydration
5.	1.5	24	Power cut and hypothermia overnight
6.	2.1	20	Sepsis
7.	2.3	11	Oxygen supply run out at night
8.	2.0	17	Oxygen supply run out at night
9.	2.2	23	No oxygen support
10.	1.7	11	Power cut and hypothermia overnight















# Rotary Funding Opportunity

- Three key goals:
  - Funds to support low-cost interventions such as IV fluid resuscitation and early feeding
  - Utilize feeding protocol with monitoring of daily weights
  - Evaluate the severity of gastroschisis using the gastroschisis prognostic score (GPS) and measure outcomes



# Grant Funds to Support

- IV syringe pump
- Solar powered wall sockets for continuous O2
- Vital signs monitoring
- Peripheral IV supplies i.e. 24-26G needles
- Small nasogastric tubes







Thank you!

Questions?

